

City of Tallahassee, FL

Full-Scale Implementation of Automated Demand Response

Abstract

The City of Tallahassee, FL's Automated Demand Response project involves the deployment of customer systems, load control programs, and distribution automation equipment. The City of Tallahassee is installing customer systems and programs to provide consumers with information, choices, and technologies to better manage their electricity costs while reducing distribution system peak demand and correlated pollution and cost impacts. Distribution projects include the deployment of a communications network, automated devices, and the upgrade of the distribution management system (DMS), which enables interoperability with existing and new devices. The City of Tallahassee expects distribution automation to improve the reliability of electric service and to enhance monitoring and optimizing distribution system conditions when demand response events are initiated.

Smart Grid Features

Communications infrastructure includes existing advanced metering infrastructure (AMI) communications systems, new customer alert notification systems, radio frequency communications to support distribution monitoring, and automation equipment. Application upgrades and integration projects are implemented on DMS and meter data management systems (MDMS). An automated demand response notification system is used to notify customers of upcoming peak demand events and to issue demand response requests to customers. This platform can notify customers through many mediums, including Internet, cell phones, text messages, and fax alerts. A new radio frequency communications system provides grid operators with monitoring and control capability for distribution automation equipment. Further integration of this equipment involves upgrade of many core applications for utility monitoring and control, including the MDMS, the outage management system, and the supervisory data control acquisition (SCADA) system.

Advanced electricity service options include programmable communicating thermostats (PCT) for residential customers. Up to 15,000 PCTs are being installed through this voluntary program, comprising 15% of the total customer base. These thermostats enable participating customers to program home heating and cooling settings that respond to peak demand events and electricity costs. These devices provide residential customers with information feedback and control options to reduce electric costs. The City of Tallahassee is deploying the thermostats to lower and offset distribution system

At-A-Glance

Recipient: City of Tallahassee, FL

State: Florida

NERC Region: Florida Reliability Coordinating Council

Total Budget: \$17,781,108

Federal Share: \$8,890,554

Project Type: Customer Systems
Electric Distribution Systems

Equipment

- Up to 15,000 Programmable Communicating Thermostats
- Direct Load Control Devices for 100 Sites
- Customer System Communication Systems
- Distribution Automation Equipment for 15 out of 138 Circuits
 - Automated Distribution Circuit Switches
 - Automated Capacitors
 - Automated Voltage Regulators

Time-based Rate Programs

- Peak Time Rebate

Key Targeted Benefits

- Reduced Customer Electricity Costs
- Improved Electric Service Reliability and Power Quality
- Reduced Ancillary Services Costs
- Reduced Congestion Costs
- Reduced Costs from Equipment Failures
- Reduced Greenhouse Gas and Criteria Pollutant Emissions

City of Tallahassee, FL (continued)

peak demand, by enabling customers to voluntarily and automatically reduce their demand through thermostat setting adjustments.

Direct load control devices include 100 automated control devices for commercial sites. Commercial customers have the option to volunteer for this program, which involve devices that automate the process of reducing electric consumption at commercial buildings during peak demand events, particularly for air conditioning. Participating customers receive rebates and reductions in their electric costs due to curtailments of non-critical loads.

Time-based rate programs include a peak-time rebate rate option in association with the residential smart thermostat program or commercial automated demand response program. This pricing program uses data from smart meters installed for all customers before the commencement of this project and alerts customers to upcoming periods of peak demand, using the new alert communications system. This option, in conjunction with the other existing rates including time-of-use and critical peak pricing, provides customers with greater control over their electrical costs and bills and reduces peak demand.

Distribution automation systems include installation of new automated feeder switches, reclosers, capacitor automation, and automated voltage regulation equipment. This equipment automates many grid management functions, such as monitoring, isolating, and stabilizing power disturbances. New communications and applications coordinate the new equipment and provide grid operators with greater visibility and control of the distribution system. These improvements enhance distribution system reliability, reduce restoration time, and reduce the number of customers affected by sustained outages. These systems improve the efficiency of the distribution system by optimizing circuit voltages and power factor.

Timeline

Key Milestones	Target Dates
Commercial direct load equipment installation start	Q1 2011
Distribution automation installation start	Q1 2012
Residential thermostat installation start	Q2 2011
Communications infrastructure deployment start	Q3 2011
Commercial direct load equipment and distribution automation installation complete	Q3 2012
Residential thermostat installation complete	Q2 2013
Communications infrastructure deployment complete	Q2 2013

Contact Information

David Byrne
Director, Energy Services
City of Tallahassee, FL
David.Byrne@talgov.com

Recipient Team Website: www.talgov.com